

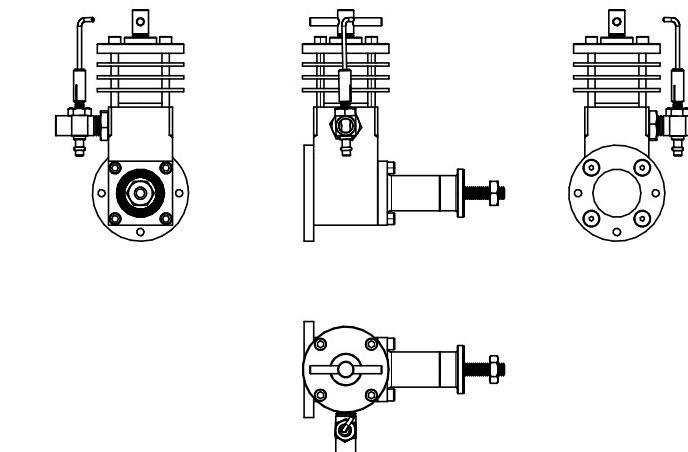
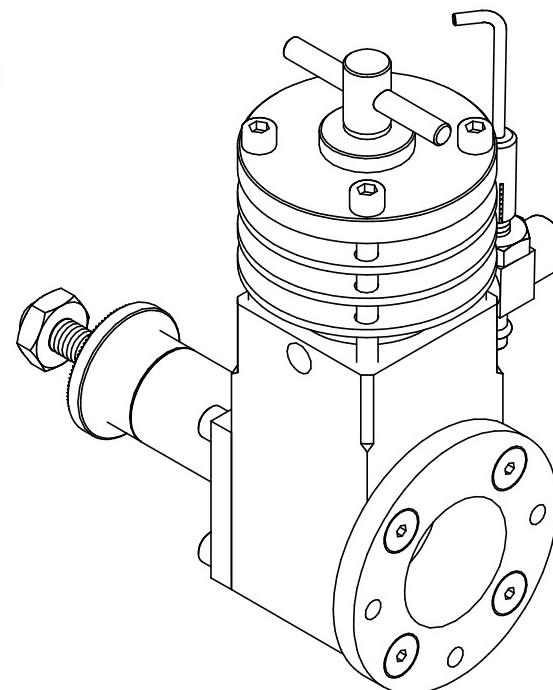
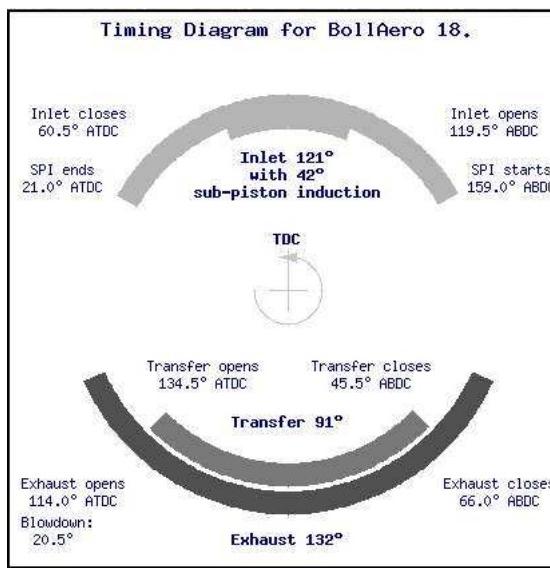
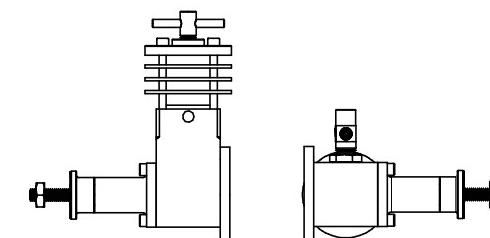
BollAero 18

Designed by Chris Boll (UK)

Bore: 0.500 (12.7 mm)

Stroke: 0.560 (14.22 mm)

Displacement: 0.110 cuin (1.8cc)



Note: The 1-1 Crankcase is symmetrical and may be reversed to place the venturi and needle valve on the side that is most convenient for the operator.

BollAero 18 - 3 Views

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-27

Edition
1

Sheet
9

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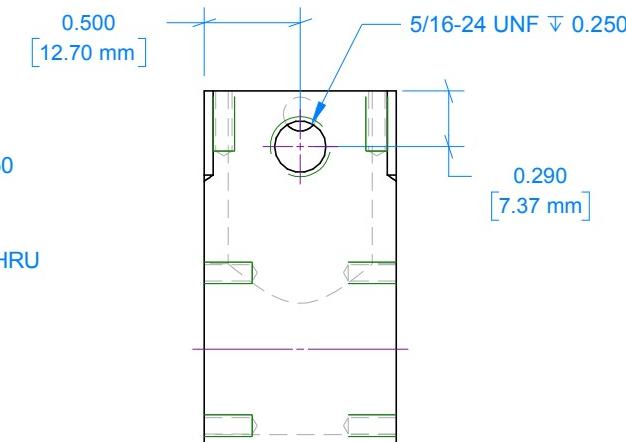
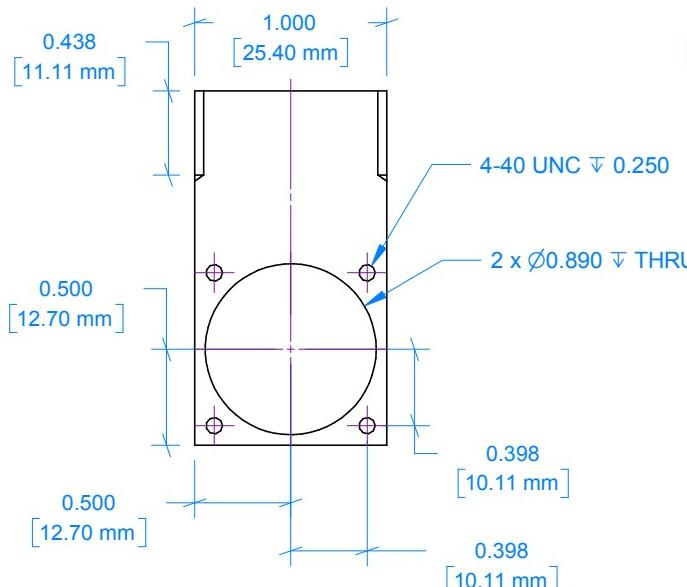
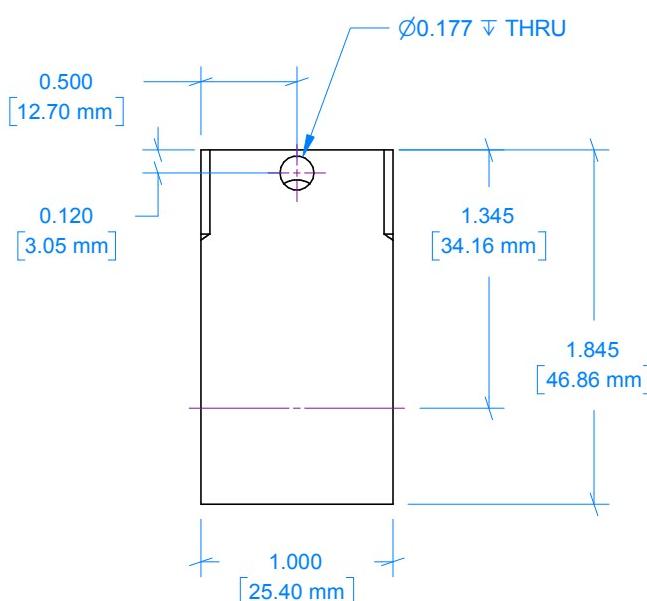
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RevNo Revision note

2 Add deck height dimension

2009-10-27 RC

A

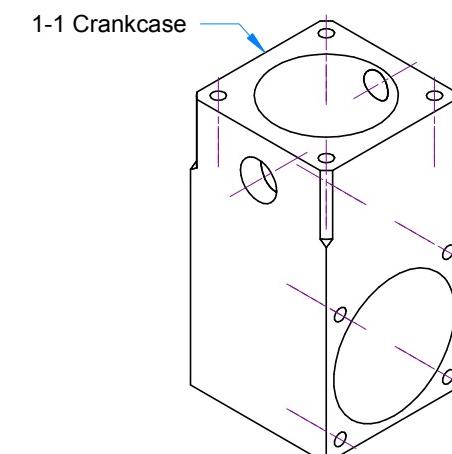
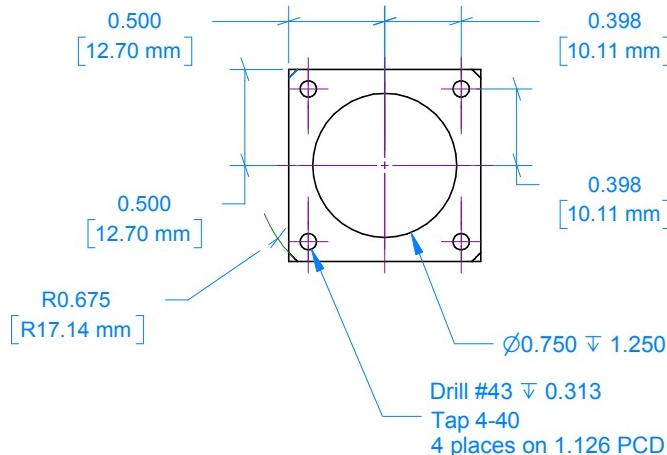


B

C

Fastner options

6BA: Drill #42 to tap, #33 to clear.
4-40: Drill #43 to tap, #33 to clear
3.0Mx0.5: Drill 2.5mm tap, 3 mm to clear.



1-1 Crankcase
1.0 sq aluminium bar

BOLL-AERO 18 - Crankcase

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-08-17

Edition
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Sheet
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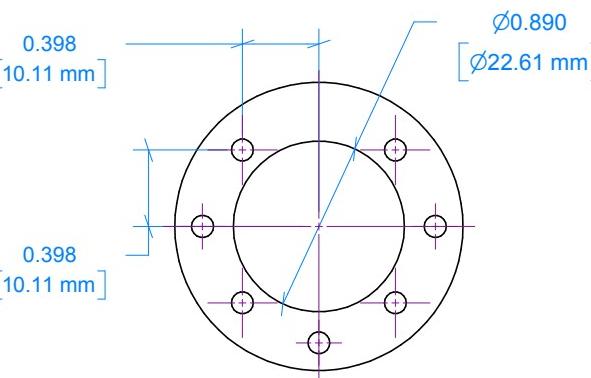
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RevNo Revision note

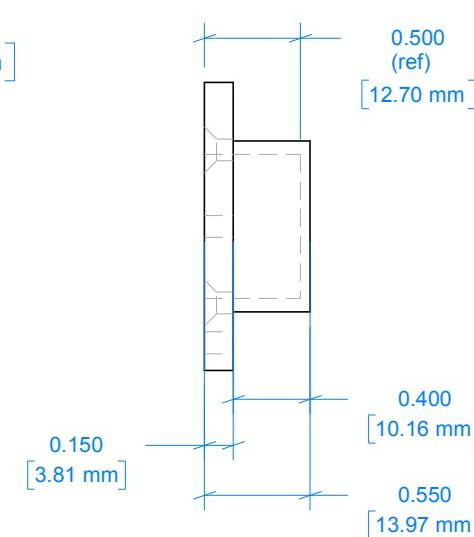
2 Correct Attachment hole spacing and reposition hole callout.

2009-10-19 Ron C.

A



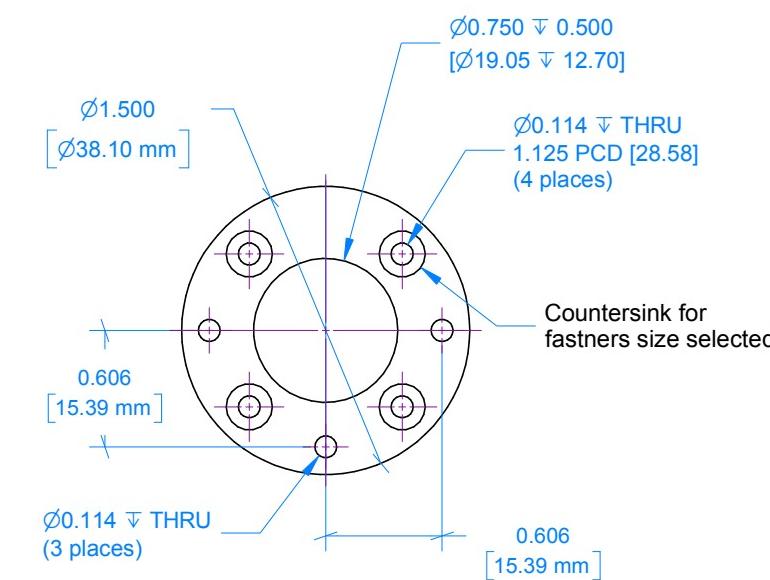
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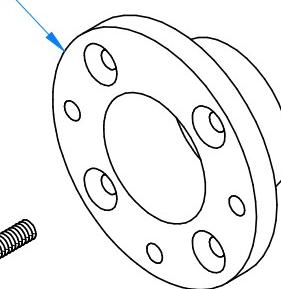
2-1 Backplate
Ø1-1/2 aluminium bar

D



2-1 Backplate

4-40 x 1/4 Csk
Allen head screw
(4 reqd)



BOLL-AERO 18 - Backplate

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-08-17



Edition
2

Sheet
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RevNo Revision note

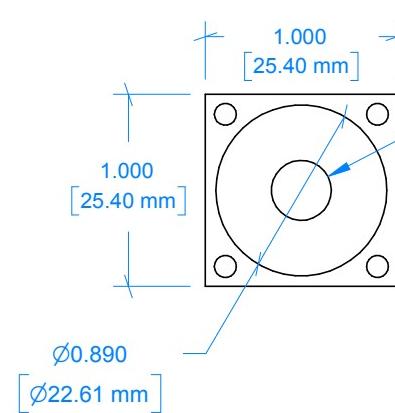
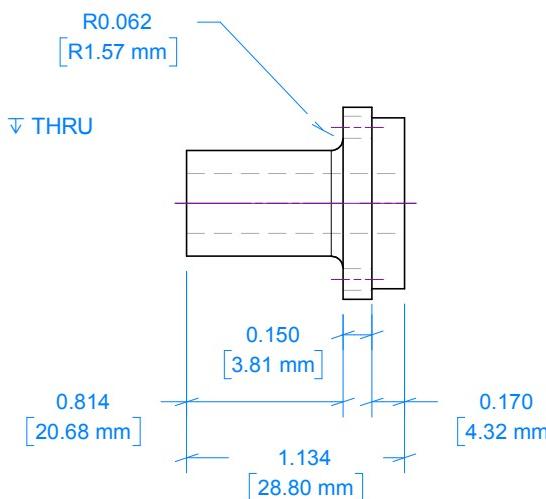
2 Add suggested radius dimension for turnmed journal to flange transition.

Date Signature Checked

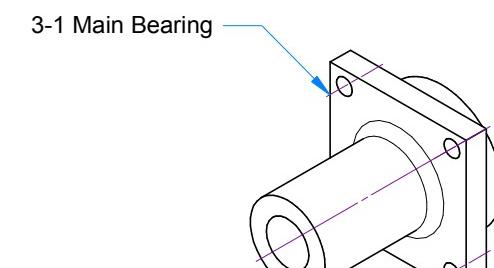
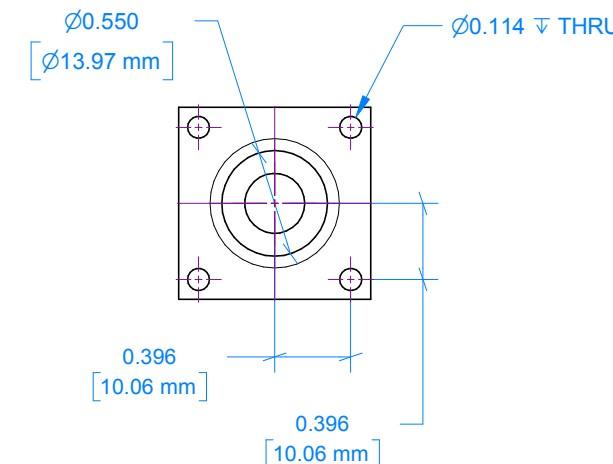
2009-10-19 Ron C

A

A

2 x Ø0.313 ↓ THRU
(ream)

3-1 Main Bearing Housing
1.0 sq aluminium bar



4-40 x .375
Allen head screw
(4 reqd)

BOLL-AERO 18 - Main Bearing

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-08-17



Edition
2

Sheet
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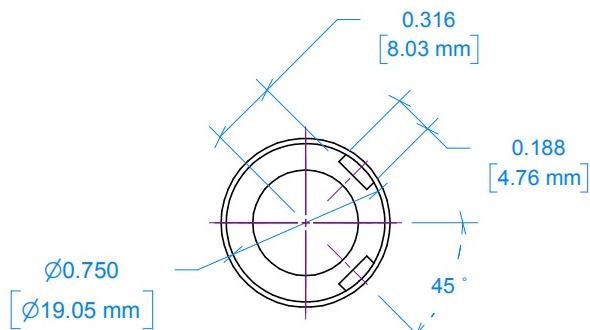
RevNo Revision note

2 Correct the note regarding milling depth of transfer passage.

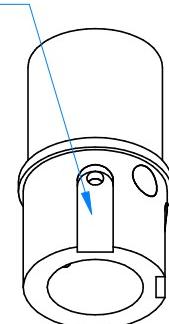
2009-10-19 Ron C

A

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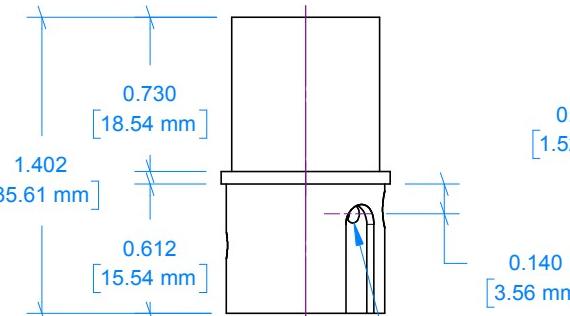
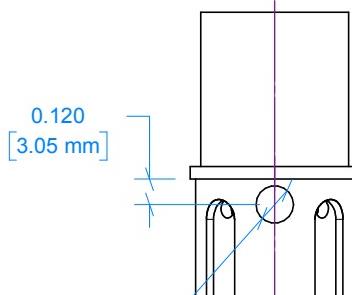


Mill Transfer passages 0.059" deep [1.5mm] using a Ø3/16" slot-drill [5 mm] so top of port reaches the top of the transfer port.

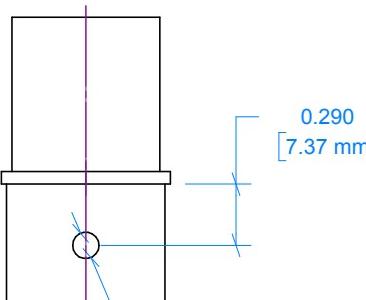


B

B



Transfer port
drill 0.086 (#44)
[2.2mm]
2 places

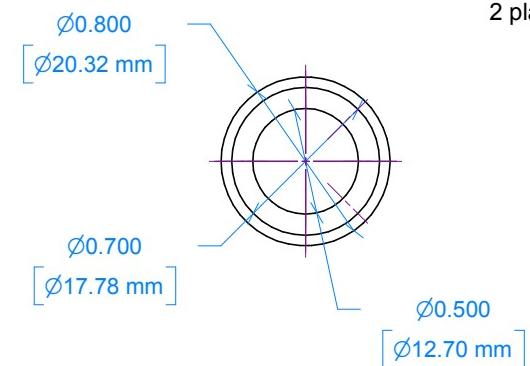


Inlet port drill Ø0.125
[Ø3.18 mm]

C

C

Exhaust port drill Ø0.177 (#16)
[Ø4.50 mm]



4-1 Cylinder
Ø7/8 12L14 Steel

BOLL-AERO 18 - Cylinder

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-01



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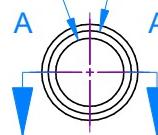
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Edition 2
Sheet 4

1	2	3	4	5	6
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RevNo	Revision note	Date	Signature	Checked
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$\phi 0.354 \pm 0.470$
 $\phi 0.433 \pm 0.200$



0.576
[14.64 mm]
0.200
[5.08 mm]

5-1 Piston
Cast Iron

0.625
[15.88 mm]
0.275
[6.99 mm]
 $\phi 0.156$ (ream)

Dome and polish ends (Note 1)

$\phi 0.157$
[$\phi 3.98$ mm]
0.460
[11.68 mm]

5-3 Gudgeon Pin
 $\phi 5/32"$ Drill Rod

$\phi 0.500$
[$\phi 12.70$ mm]
 $\phi 0.460 \pm 0.250$

B B

0.350
[8.89 mm]
0.250
[6.35 mm]

5-4 Contra-piston
Cast Iron

$\phi 0.156$
[$\phi 3.96$ mm]
0.160
[4.06 mm]
1.180
[29.97 mm]
 $\phi 0.300$
[$\phi 7.62$ mm]
 $\phi 0.300$
[$\phi 7.62$ mm]
 $\phi 0.156$ (ream)

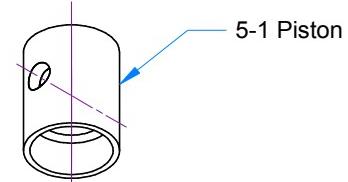
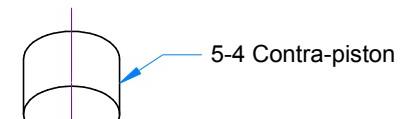
Section L-L

5-2 Conrod
2024 T3 Aluminium

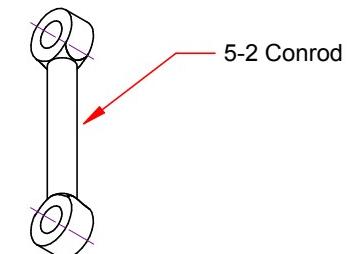
2 Add Note 1.
3 Revise conrod cross section to circular.

2009-10-19 Ron C.
2009-10-26 Ron C.

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5-3 Gudgeon Pin



5-3 Gudgeon Pin

5-2 Conrod

Note 1. The -3 Gudgeon pin is a fully floating fit in the -1 Piston and -2 Conrod. Dome and polish the ends to prevent scoring of the 4-1 Cylinder Liner.

BOLL AERO 18 - Pistons and Rod

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-01

Edition
3
Sheet
5

1	2	3	4	5	6
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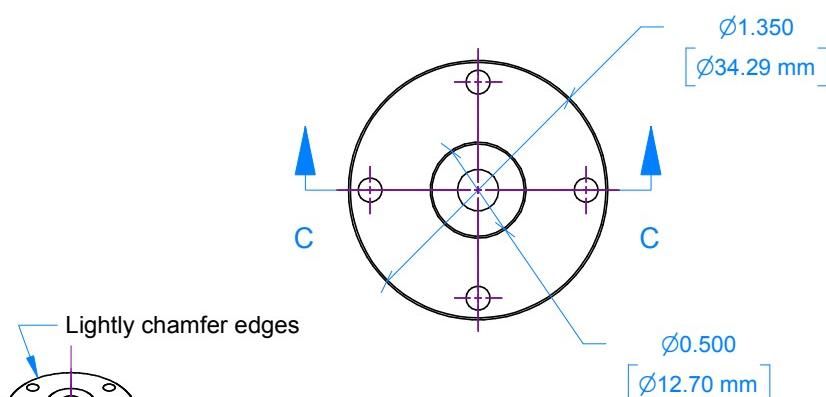
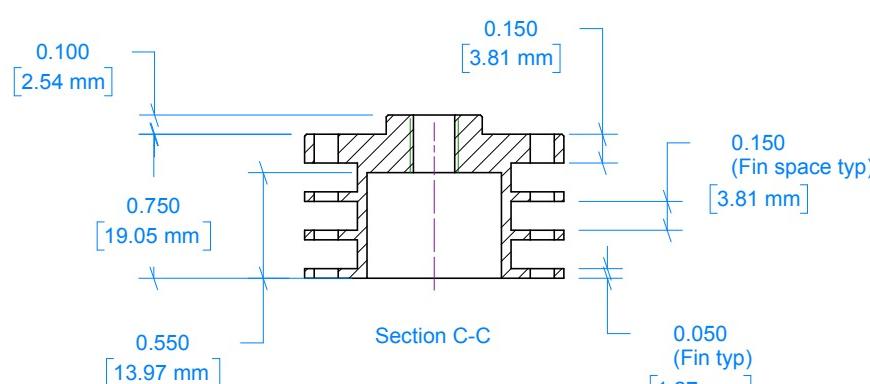
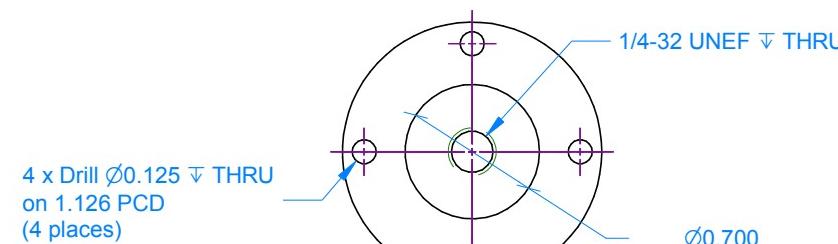
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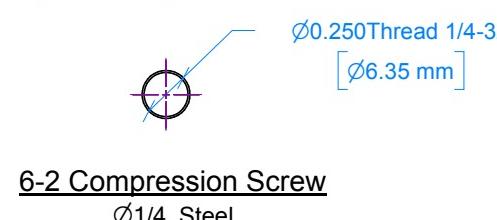
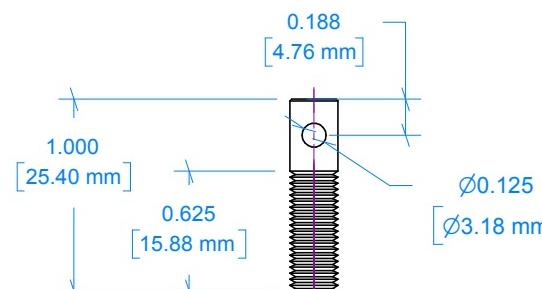
RevNo Revision note

- 2 Add Thread callout to -2 Compression Screw.
3 Correct the PCD note.

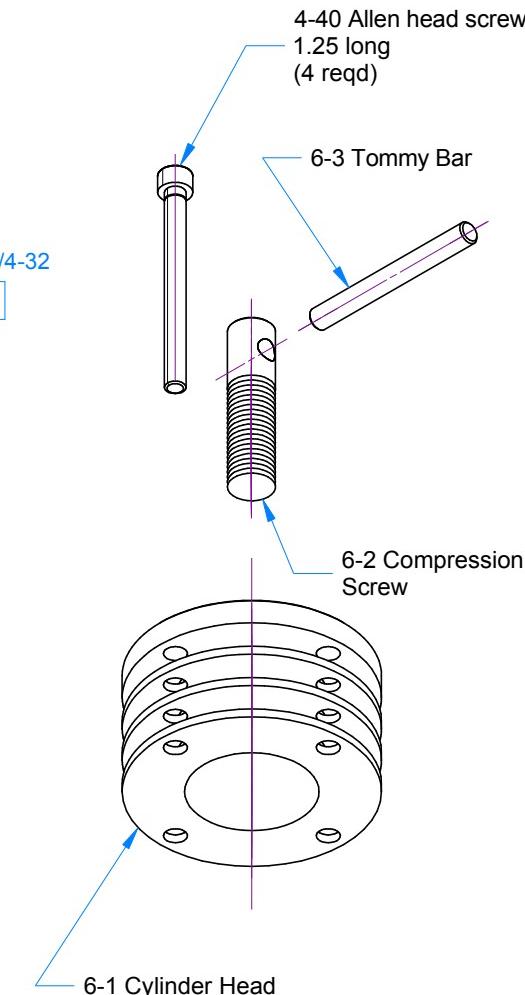
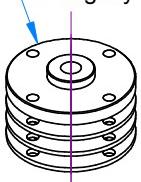
2009-10-19 Ron C.
2009-10-27 Ron C.



6-1 Cylinder Head
Ø1-3/8 aluminium bar



6-3 Tommy Bar
Ø1/8 Music Wire



BOLL AERO - Cylinder Muff

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-01



Edition
3

Sheet
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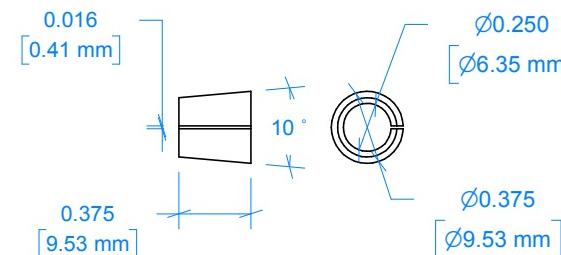
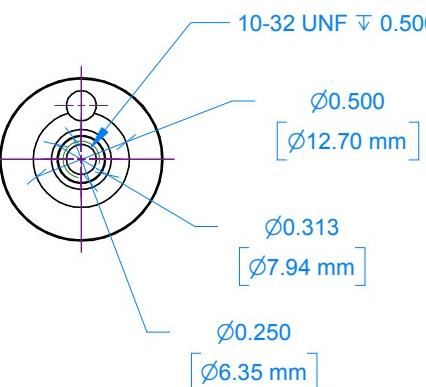
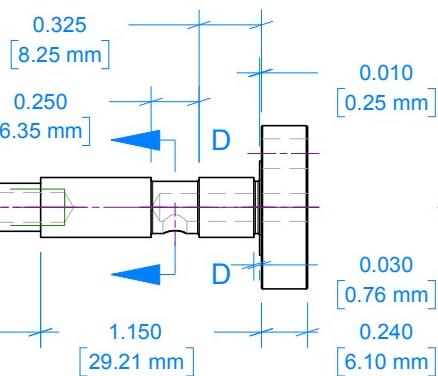
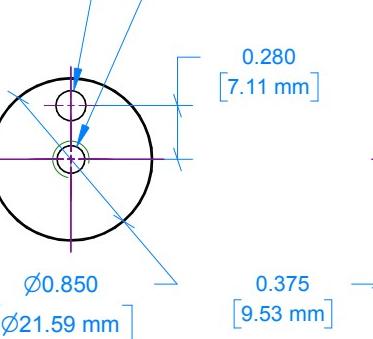
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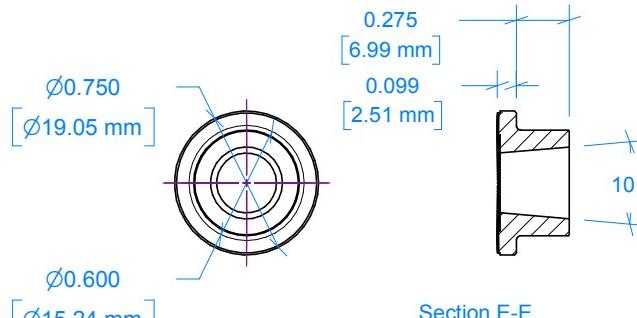
2 Insert Centers.

2009-10-20 Ron C

A



7-1 Crankshaft
 $\varnothing 7/8$ stressproof steel, or HT bolt



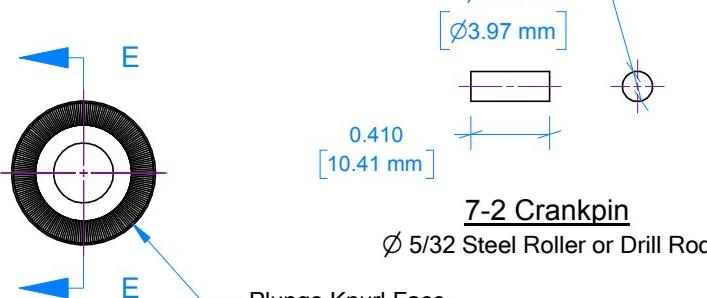
7-4 Prop Driver
 $\varnothing 3/4$ aluminium bar



Alternate Threads:

2BA or 3/16 Whitworth
UNF 10-32
4Mx0.7

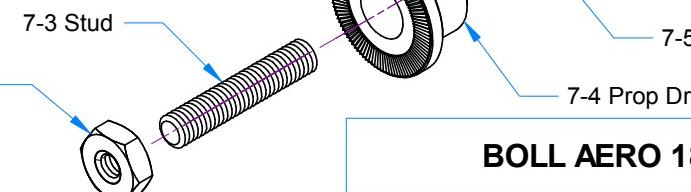
7-3 Stud
Cut from 10-32 machine screw



7-2 Crankpin
 $\varnothing 5/32$ Steel Roller or Drill Rod

Plunge Knurl Face

7-2 Crankpin
Loctite to 7-1 Crankshaft



BOLL AERO 18 - Crankshaft

Drawn by

CAD by
Ron Chernich
2009-10-01Edition
2Sheet
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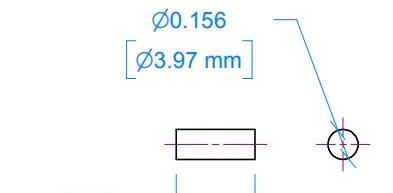
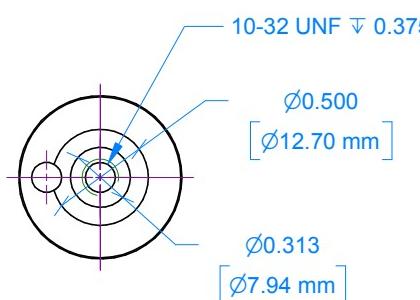
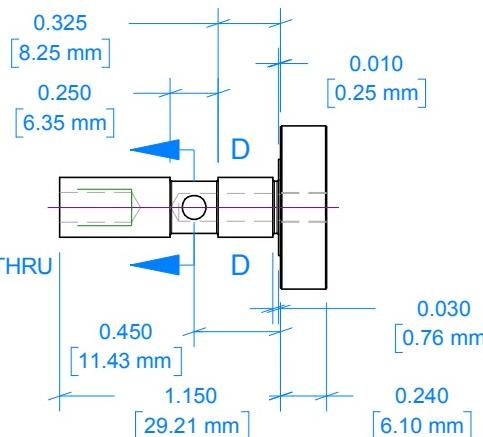
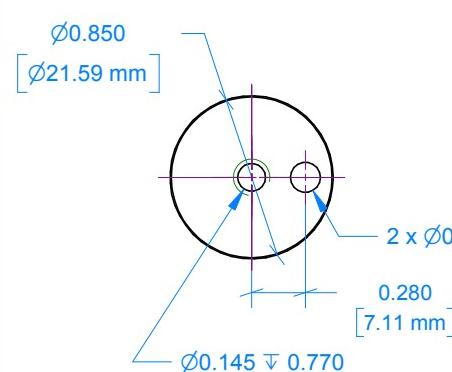
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Note 1: This sheet depicts the original crankshaft and Prop Driver design. The method of fixing the -4 Prop Driver is simpler than that shown on Sheet 7, but may result in a thrown prop.

RevNo Revision note

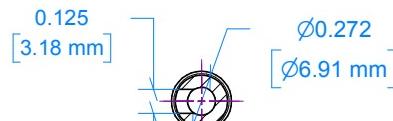
Date Signature Checked

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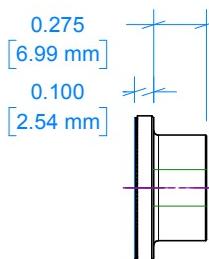
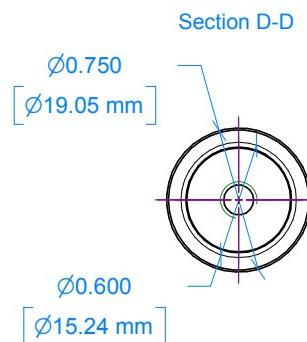


7a-2 Crankpin
Ø 5/32 Steel Roller or Drill Rod

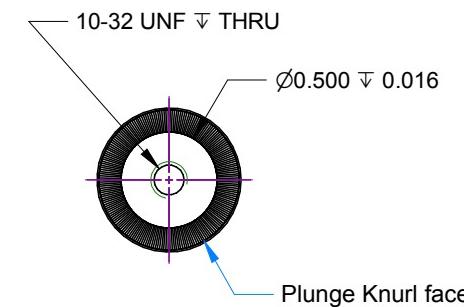
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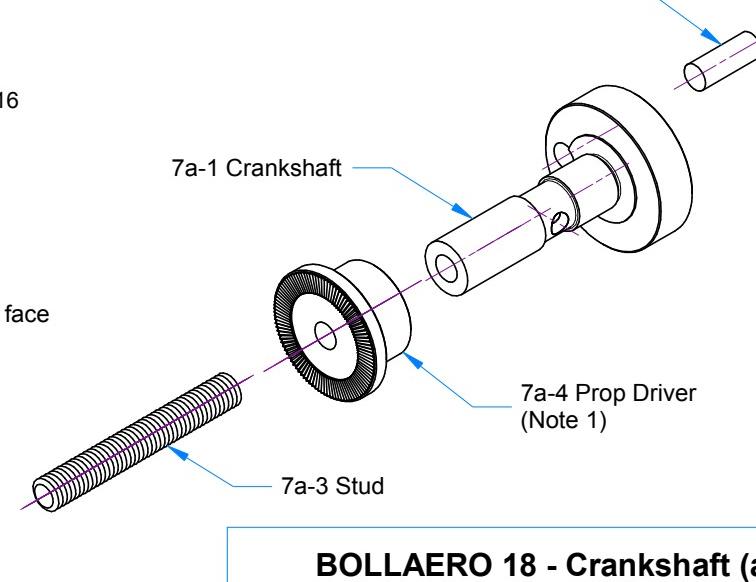
7a-1 Crankshaft
Ø7/8 stressproof steel, or HT bolt



7a-4 Prop Driver
Ø3/4 aluminium bar



7a-2 Crankpin
Loctite to 7a-1 Crankshaft



C



7a-3 Stud
Cut from 10-32 machine screw

Alternate Threads:
2BA, or 3/16 Whitworth
UNF 10-32
4Mx0.7

BOLLAERO 18 - Crankshaft (alt 1)

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-20

Edition
1

Sheet
7a

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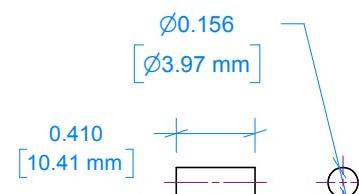
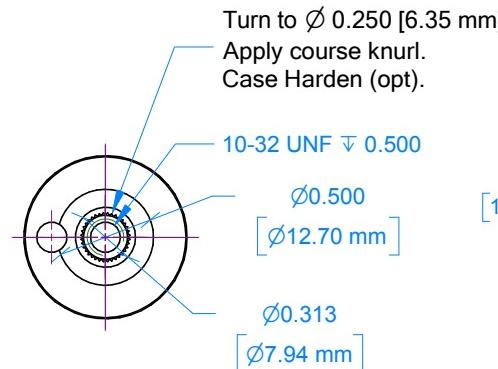
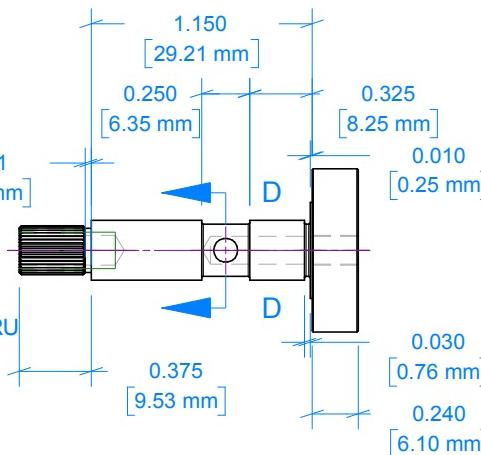
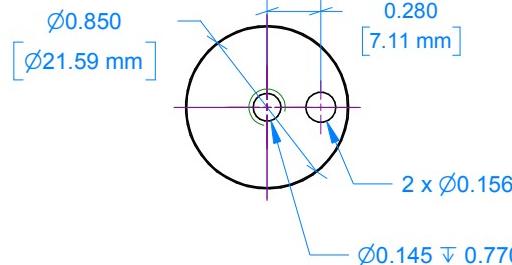
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Note 1: Drill -4 Prop Driver 0.240 (Letter "C") for a force-fit on knurled section of -1 Crankshaft.

RevNo	Revision note
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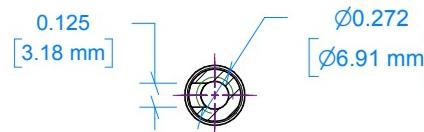
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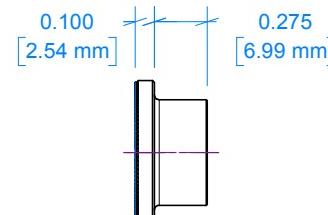
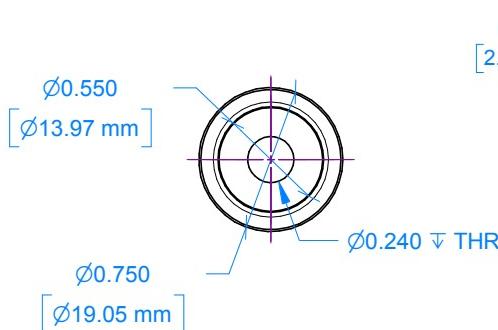
7b-2 Crankpin
Ø 5/32 Steel Roller or Drill Rod

B

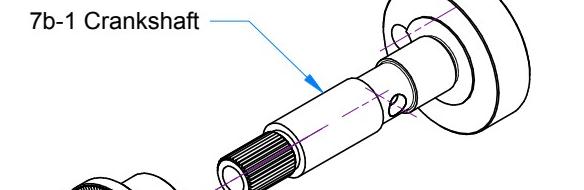
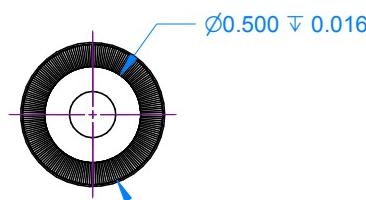


7b-1 Crankshaft
Ø7/8 stressproof steel, or HT bolt

Section D-D

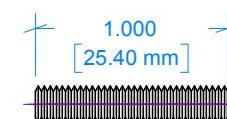


7b-4 Prop Driver
Ø3/4 aluminium bar



-2 Crankpin
Loctite to -1 Crankshaft

C



7b-3 Stud
Cut from 10-32 machine screw

Alternate Threads:

2BA or 3/16 Whitworth
UNF 10-32
4Mx0.7

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BOLLAERO 18 - Crankshaft (alt 2)

Drawn by

CAD by
Ron Chernich
2009-10-20

Edition

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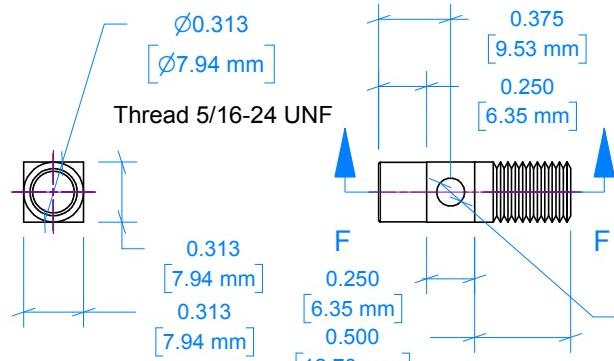
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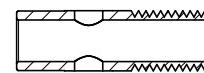
D

2 Add thread callout to 8-1 Venturi.

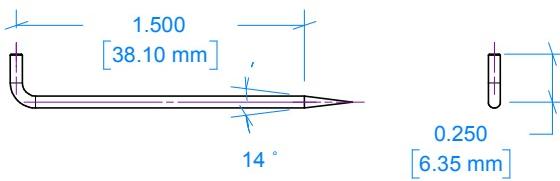
2009-11-04 Ron C



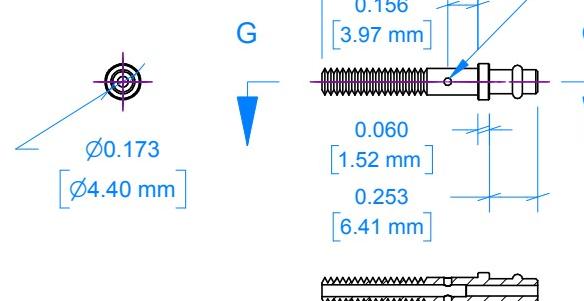
8-1 Venturi
5/16 sq Aluminium



Section F-F



8-4 Needle
Ø1/16 Music Wire



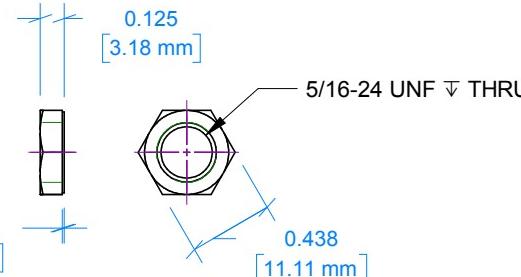
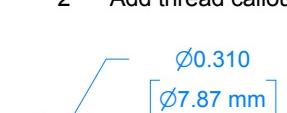
8-3 Spray Bar
Ø3/16 Brass

Section G-G

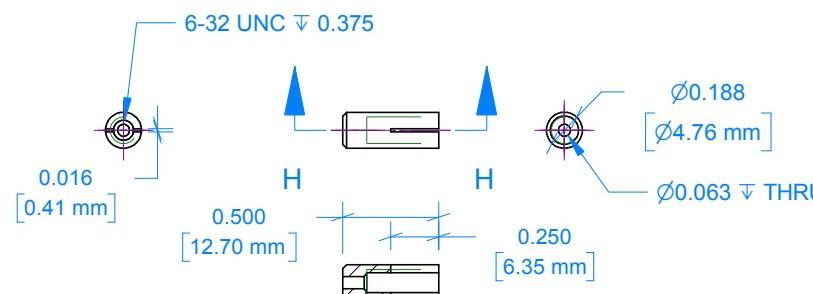
Alternate Threads

Spraybar and Thimble: 6BA, 6-32 UNC, 3.5Mx0.6

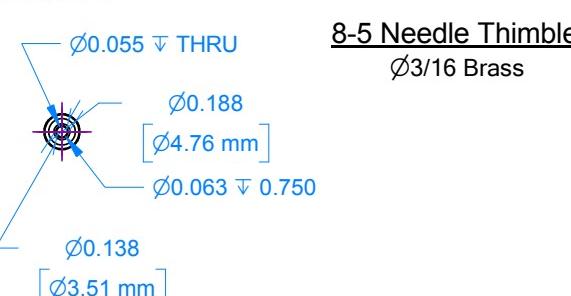
Venturi and Jam Nut: 5/16-32 ME, 5/16-24 UNF, 8Mx1.25



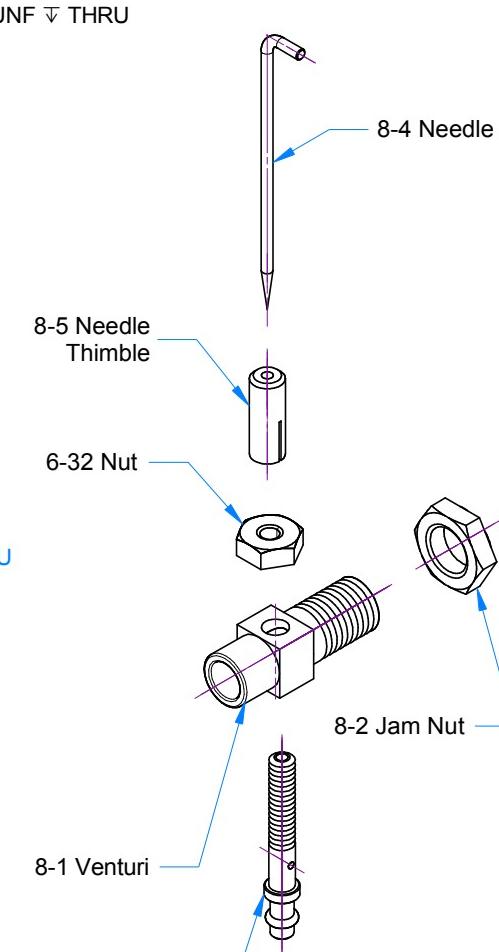
8-2 Jam Nut
7/16 AF Hex Brass



Section H-H



8-5 Needle Thimble
Ø3/16 Brass



BOLL AERO 18 - Fuel System

Drawn by
Chris Boll

CAD by
Ron Chernich
2009-10-01

Edition
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